09/667,646

Access DB# _____

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Hector Reyes Examiner #: 78264 Date: 4/16/03

Art Unit: 1625 Phone Number 30 605 1153 Serial Number: 10/667,641

Mail Box and Bldg/Room Location: 3D01 - 4D-16 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): See Bib's Copy

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Point of Contact:
Thomas G. Larson, Ph.D.
703-308-7309
CM1, Rm. 6B01

****

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Searcher: Point of Contact: Thomas G. Larson, Ph.D.

Searcher Phone #: 703-308-7309

Searcher Location: CM1, Rm. 6B01

Date Searcher Picked Up: 4/16

Date Completed: 4/23

Searcher Prep & Review Time: 30

Clerical Prep Time: _____

Online Time: 277

Type of Search		Vendors and cost where applicable	
NA Sequence (#)		STN	#834
AA Sequence (#)		Dialog	
Structure (#)		Questel/Orbit	
Bibliographic	X	Dr.Link	
Litigation		Lexis/Nexis	
Fulltext		Sequence Systems	
Patent Family		WWW/Internet	
Other		Other (specify)	

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PTO-1590 (8-01)

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```
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FILE COVERS 1907 - 23 Apr 2003  VOL 138 ISS 17
FILE LAST UPDATED: 22 Apr 2003  (20030422/ED)

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.
```

Search controlled Index Term Fields.

```
=> d que L9
L1   (     34578)SEA FILE=HCAPLUS ABB=ON  PLU=ON  PROPYLENE+PFT/CT
L2   (      4978)SEA FILE=HCAPLUS ABB=ON  PLU=ON  "OXIDATION (L) CATALYTIC"+PFT/
                 CT
L3   (     29800)SEA FILE=HCAPLUS ABB=ON  PLU=ON  ACRYLIC ACID+PFT/CT
L4   (     75944)SEA FILE=HCAPLUS ABB=ON  PLU=ON  ACETIC ACID/CT
L5   (     15474)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L1 (L) (RCT OR RACT)/RL
L6   (      4652)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L3 (L) PREP/RL
L7   (      6047)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L4 (L) PREP/RL
L8   (        38)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L5 AND L6 AND L7
L9             2 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L8 AND L2
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Reactant or reagent role

preparation role

```
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L11  (     29800)SEA FILE=HCAPLUS ABB=ON  PLU=ON  ACRYLIC ACID+PFT/CT
L12  (     75944)SEA FILE=HCAPLUS ABB=ON  PLU=ON  ACETIC ACID/CT
L13  (     15477)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L10 (L) (RCT OR RACT)/RL
L14  (      4653)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L11 (L) PREP/RL
L15  (      6051)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L12 (L) PREP/RL
L16  (        38)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L13 AND L14 AND L15
L17  (    106147)SEA FILE=HCAPLUS ABB=ON  PLU=ON  PURIFICATION+NT,PFT/CT
L18            1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 AND L17
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NT = include narrower controlled terms

PFT = include both preferred and forbidden terms.

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=> d que L27
L19  (     34578)SEA FILE=HCAPLUS ABB=ON  PLU=ON  PROPYLENE+PFT/CT
L20  (     29800)SEA FILE=HCAPLUS ABB=ON  PLU=ON  ACRYLIC ACID+PFT/CT
L21  (     75944)SEA FILE=HCAPLUS ABB=ON  PLU=ON  ACETIC ACID/CT
L22  (     15477)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 (L) (RCT OR RACT)/RL
L23  (      4653)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L20 (L) PREP/RL
L24  (      6051)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L21 (L) PREP/RL
L25  (        38)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L22 AND L23 AND L24
L26  (     57733)SEA FILE=HCAPLUS ABB=ON  PLU=ON  EXTRACTION+NT,PFT/CT
L27            2 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L25 AND L26
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L28 (     34578)SEA FILE=HCAPLUS ABB=ON  PLU=ON  PROPYLENE+PFT/CT
L29 (     29800)SEA FILE=HCAPLUS ABB=ON  PLU=ON  ACRYLIC ACID+PFT/CT
L30 (     75944)SEA FILE=HCAPLUS ABB=ON  PLU=ON  ACETIC ACID/CT
L31 (     15477)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L28 (L) (RCT OR RACT)/RL
L32 (      4653)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L29 (L) PREP/RL
L33 (      6051)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L30 (L) PREP/RL
L34 (        38)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L31 AND L32 AND L33
L35 (     19658)SEA FILE=HCAPLUS ABB=ON  PLU=ON  DISTILLATION+NT,PFT/CT
L36           1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L34 AND L35


=> d que L48
L37 (     34578)SEA FILE=HCAPLUS ABB=ON  PLU=ON  PROPYLENE+PFT/CT
L38 (     29800)SEA FILE=HCAPLUS ABB=ON  PLU=ON  ACRYLIC ACID+PFT/CT
L39 (     75944)SEA FILE=HCAPLUS ABB=ON  PLU=ON  ACETIC ACID/CT
L40 (     15477)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L37 (L) (RCT OR RACT)/RL
L41 (      4653)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L38 (L) PREP/RL
L42 (      6051)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L39 (L) PREP/RL
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L44 (     64945)SEA FILE=HCAPLUS ABB=ON  PLU=ON  CYCLOALKANES+NT,PFT/CT
L45 (      2480)SEA FILE=HCAPLUS ABB=ON  PLU=ON  PROPYL ACETATE+PFT/CT
L46 (      1519)SEA FILE=HCAPLUS ABB=ON  PLU=ON  ISOPROPYL ACETATE+PFT/CT
L47 (     67777)SEA FILE=HCAPLUS ABB=ON  PLU=ON  L44 OR L45 OR L46
L48           0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L43 AND L47


=> s L9 or L18 or L27 or L36 or L48
L89           4 L9 OR L18 OR L27 OR L36 OR L48
```

Combine CAplus answer sets

```
=> file wpids
FILE 'WPIDS' ENTERED AT 14:05:46 ON 23 APR 2003
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FILE LAST UPDATED:          16 APR 2003      <20030416/UP>
MOST RECENT DERWENT UPDATE:     200325        <200325/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

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    GUIDES, PLEASE VISIT:
    http://www.derwent.com/userguides/dwpi_guide.html <<<
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No controlled term indexing in WPIDS - use free text.

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=> d que L59
L49 (     77166)SEA FILE=WPIDS ABB=ON  PLU=ON  PROPYLENE OR PROPENE
L50 (    147986)SEA FILE=WPIDS ABB=ON  PLU=ON  OXIDAT?
L51 (       913)SEA FILE=WPIDS ABB=ON  PLU=ON  L49 (5A) L50
L52 (    140463)SEA FILE=WPIDS ABB=ON  PLU=ON  ACETIC ACID OR ACETATE OR
                ETHANOIC ACID
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L53 (     97509)SEA FILE=WPIDS ABB=ON  PLU=ON  ACRYLIC ACID OR ACRYLATE OR
               PROPENOIC ACID OR PROPENOATE OR VINYLFORMIC ACID OR VINYLFORMAT
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L54 (     15144)SEA FILE=WPIDS ABB=ON  PLU=ON  L52 (S) L53
L55 (        48)SEA FILE=WPIDS ABB=ON  PLU=ON  L54 AND L51
L56 (     76127)SEA FILE=WPIDS ABB=ON  PLU=ON  DISTILL?
L57 (        30)SEA FILE=WPIDS ABB=ON  PLU=ON  L55 AND L56
L58 (       633)SEA FILE=WPIDS ABB=ON  PLU=ON  (PROPYL OR ISOPROPYL) (W)
               ACETATE
L59            3 SEA FILE=WPIDS ABB=ON  PLU=ON  L57 AND L58


=> d que L69
L60 (     77166)SEA FILE=WPIDS ABB=ON  PLU=ON  PROPYLENE OR PROPENE
L61 (    140463)SEA FILE=WPIDS ABB=ON  PLU=ON  ACETIC ACID OR ACETATE OR
               ETHANOIC ACID
L62 (     97509)SEA FILE=WPIDS ABB=ON  PLU=ON  ACRYLIC ACID OR ACRYLATE OR
               PROPENOIC ACID OR PROPENOATE OR VINYLFORMIC ACID OR VINYLFORMAT
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L63 (      2529)SEA FILE=WPIDS ABB=ON  PLU=ON  L60 AND L61 AND L62
L64 (    147986)SEA FILE=WPIDS ABB=ON  PLU=ON  OXIDAT?
L65 (       113)SEA FILE=WPIDS ABB=ON  PLU=ON  L63 AND L64
L66 (   1387103)SEA FILE=WPIDS ABB=ON  PLU=ON  FRACTION? OR SEPARAT? OR PURIF?
              OR RECOVER? OR DISTIL? OR EXTRACT?
L67 (        52)SEA FILE=WPIDS ABB=ON  PLU=ON  L65 AND L66
L68 (     18695)SEA FILE=WPIDS ABB=ON  PLU=ON  CYCLOHEXANE OR CYCLOALKANE
L69            5 SEA FILE=WPIDS ABB=ON  PLU=ON  L67 AND L68


=> d que L79
L70 (     77166)SEA FILE=WPIDS ABB=ON  PLU=ON  PROPYLENE OR PROPENE
L71 (    140463)SEA FILE=WPIDS ABB=ON  PLU=ON  ACETIC ACID OR ACETATE OR
               ETHANOIC ACID
L72 (     97509)SEA FILE=WPIDS ABB=ON  PLU=ON  ACRYLIC ACID OR ACRYLATE OR
               PROPENOIC ACID OR PROPENOATE OR VINYLFORMIC ACID OR VINYLFORMAT
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L73 (      2529)SEA FILE=WPIDS ABB=ON  PLU=ON  L70 AND L71 AND L72
L74 (    147986)SEA FILE=WPIDS ABB=ON  PLU=ON  OXIDAT?
L75 (       113)SEA FILE=WPIDS ABB=ON  PLU=ON  L73 AND L74
L76 (   1387103)SEA FILE=WPIDS ABB=ON  PLU=ON  FRACTION? OR SEPARAT? OR PURIF?
               OR RECOVER? OR DISTIL? OR EXTRACT?
L77 (        52)SEA FILE=WPIDS ABB=ON  PLU=ON  L75 AND L76
L78 (       404)SEA FILE=WPIDS ABB=ON  PLU=ON  PROPYLACETATE OR PROPYL ACETATE
               OR ACETIC ACID N-PROPYL ESTER
L79            3 SEA FILE=WPIDS ABB=ON  PLU=ON  L77 AND L78


=> d que L88
L80 (     77166)SEA FILE=WPIDS ABB=ON  PLU=ON  PROPYLENE OR PROPENE
L81 (    140463)SEA FILE=WPIDS ABB=ON  PLU=ON  ACETIC ACID OR ACETATE OR
               ETHANOIC ACID
L82 (     97509)SEA FILE=WPIDS ABB=ON  PLU=ON  ACRYLIC ACID OR ACRYLATE OR
               PROPENOIC ACID OR PROPENOATE OR VINYLFORMIC ACID OR VINYLFORMAT
               E
L83 (      2529)SEA FILE=WPIDS ABB=ON  PLU=ON  L80 AND L81 AND L82
L84 (    147986)SEA FILE=WPIDS ABB=ON  PLU=ON  OXIDAT?
L85 (       113)SEA FILE=WPIDS ABB=ON  PLU=ON  L83 AND L84
L86 (       329)SEA FILE=WPIDS ABB=ON  PLU=ON  ISOPROPYLACETATE OR ISOPROPYL
               ACETATE OR ACETIC ACID I-PROPYL ESTER
L87 (         8)SEA FILE=WPIDS ABB=ON  PLU=ON  I-PROPYLACETATE OR I-PROPYL
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ACETATE OR ACETIC ACID ISOPROPYL ESTER
L88 1 SEA FILE=WPIDS ABB=ON PLU=ON L85 AND (L86 OR L87)

=> s L59 or L69 or L79 or L88
L90 7 L59 OR L69 OR L79 OR L88

=> dup rem L89 L90
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PROCESSING COMPLETED FOR L89
PROCESSING COMPLETED FOR L90
L91 11 DUP REM L89 L90 (0 DUPLICATES REMOVED)

=> D IBIB ABS 1-11

L91 ANSWER 1 OF 11 WPIDS (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 2003-103324 [09] WPIDS
DOC. NO. CPI: C2003-026031
TITLE: Latex-modified alkyd composition for use in coating composition, comprises polyol-containing latex compositions and diol-containing latex compositions.
DERWENT CLASS: A14 A25 A82 G02
INVENTOR(S): JONES, A S; KUO, T; MONCIER, J D; MURRAY, D L; SHARMA, M K
PATENT ASSIGNEE(S): (JONE-I) JONES A S; (KUOT-I) KUO T; (MONC-I) MONCIER J D; (MURR-I) MURRAY D L; (SHAR-I) SHARMA M K; (EACH) EASTMAN CHEM CO
COUNTRY COUNT: 30
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2002081545	A1	20021017	(200309)*	EN	59
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR					
W: AU BR CA CN CZ JP KR MX SG ZA					
US 2003018110	A1	20030123	(200310)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2002081545	A1	WO 2002-US10782	20020404
US 2003018110	A1 Provisional	US 2001-282612P	20010409
		US 2002-94355	20020308

PRIORITY APPLN. INFO: US 2002-94355 20020308; US 2001-282612P 20010409
AN 2003-103324 [09] WPIDS
AB WO 200281545 A UPAB: 20030206
NOVELTY - A latex-modified alkyd composition comprises a polyol-containing latex composition and a diol-containing latex composition.
DETAILED DESCRIPTION - A latex-modified alkyd composition comprises:
(1) 5-80 wt.% latex polymer composition comprising

(a) latex polymer particles comprising a residue of an ethylenically unsaturated monomer;

(b) a stabilizer comprising a surfactant and sulfopolyester; and

(c) a liquid continuous phase comprising a diol component present at 10-100 wt.% continuous phase, and optionally polyol component;

(2) 20-90 wt.% monobasic fatty acid, fatty ester, or a naturally occurring, partially saponified oil;and

(3) optionally, a polycarboxylic acid or a polycarboxylic acid anhydride, a monocarboxylic acid or a sulfomonomer.

INDEPENDENT CLAIMS are included for the following:

(a) A process of preparing a latex-modified alkyd composition comprising combining 5-80 wt.% latex polymer composition and 20-90 wt.% monobasic fatty acid, fatty ester, and naturally occurring, partially saponified oil, as alkyd polymer precursors;

(b) An enamel composition comprising 10-90 wt.% latex-modified alkyd composition, 10-90 wt.% organic solvent, and a catalytic amount of a metal drier;

(c) A coating composition comprising 35-90 wt.% latex-modified alkyd composition, 5-50 wt.% crosslinker, and optionally, an organic solvent present at greater than 0-60 wt.%;

(d) An article coated with the coating composition;

(e) A waterborne enamel composition comprising 10-90 wt.% latex modified alkyd composition, a catalytic amount of a metal drier, and optionally, a water miscible organic solvent present at greater than 0-40 wt.%.

USE - In coating composition useful for coating metal, paper, or plastic articles (claimed).

ADVANTAGE - The resulting alkyd polymers have excellent coating properties, because of a greater number of groups available for **oxidative** cure. The inventive process provides a method for blending alkyd and latex with improved stability.

Dwg.0/0

L91 ANSWER 2 OF 11 WPIDS (C) 2003 THOMSON DERWENT

ACCESSION NUMBER: 2003-069497 [07] WPIDS

DOC. NO. CPI: C2003-018221

TITLE: Microcapsules, useful in **oxidation** dye compositions, comprise an aqueous core containing an oxidizing enzyme in a shell of selected polymer.

DERWENT CLASS: A96 D21 E19 E24

INVENTOR(S): BERNARD, A L; BIATRY, B; NICOLAS, M L; SIMONNET, J T; BERNARD, A; NICOLAS MORGANTINI, L; SIMONNET, J

PATENT ASSIGNEE(S): (OREA) L'OREAL SA

COUNTRY COUNT: 100

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
FR 2821548	A1	20020906	(200307)*		43
WO 2002069922	A1	20020912	(200307)	FR	

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
FR 2821548	A1	FR 2001-2972	20010305
WO 2002069922	A1	WO 2002-FR704	20020227

PRIORITY APPLN. INFO: FR 2001-2972 20010305
AN 2003-069497 [07] WPIDS
AB FR 2821548 A UPAB: 20030129
NOVELTY - Microcapsules comprise:
(a) an aqueous core containing a 2- or 4-electron oxidoreductase or peroxidase enzyme; and
(b) a shell of a selected polymer including polycaprolactone, poly(3-hydroxybutyrate), poly(alkylene adipate), cellulose carboxylate ester, styrene-ethylene/butylene-styrene, styrene-ethylene/**propylene**-styrene block copolymer or ethylene/vinyl **acetate**/maleic anhydride terpolymer.
DETAILED DESCRIPTION - Microcapsules comprise:
(a) an aqueous core containing a 2- or 4-electron oxidoreductase or peroxidase enzyme; and
(b) a shell of polycaprolactone, poly(3-hydroxybutyrate), poly(ethylene adipate), poly(butylene adipate), a cellulose 1-4C carboxylate ester, a styrene/maleic anhydride or styrene/**acrylic acid** copolymer, a styrene-ethylene/butylene-styrene or styrene-ethylene/**propylene**-styrene block copolymer or an ethylene/vinyl **acetate**/maleic anhydride terpolymer.
INDEPENDENT CLAIMS are also included for:
(1) a process for producing the microcapsules, comprising solubilizing or dispersing the enzyme in an aqueous phase; emulsifying the solution or dispersion in a solution of the shell polymer in a water-immiscible organic solvent; emulsifying the resulting primary water-in-oil emulsion in an aqueous solution; removing the organic solvent; and optionally removing water;
(2) a composition for **oxidation** dyeing of keratinic fibers, comprising the microcapsules and one or more developers and/or couplers in a physiologically acceptable medium;
(3) an **oxidation** dyeing kit comprising **separate** components, one comprising the microcapsules and another comprising one or more developers and/or couplers.
USE - The microcapsules are useful as the oxidizing component in compositions and kits for **oxidation** dyeing of keratinic fibers, e.g. hair.
ADVANTAGE - The polymer shell retains the enzyme irreversibly while allowing small molecules, e.g. oxygen and hydrogen peroxide, to escape; inhibits adsorption of the enzyme on the hair and scalp; prevents inhibition of the enzyme by certain dyes; and reduces heat inactivation of the enzyme.
Dwg.0/0

L91 ANSWER 3 OF 11 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:106135 HCAPLUS
DOCUMENT NUMBER: 136:281122
TITLE: Catalytic Wall Reactor as a Tool for Isothermal Investigations in the Heterogeneously Catalyzed Oxidation of Propene to Acrolein
AUTHOR(S): Redlingshoefer, Hubert; Kroecher, Oliver; Boeck, Wolfgang; Huthmacher, Klaus; Emig, Gerhard
CORPORATE SOURCE: Lehrstuhl fuer Technische Chemie I, University of Erlangen-Nuremberg, Erlangen, 91058, Germany
SOURCE: Industrial & Engineering Chemistry Research (2002),

41(6), 1445-1453
CODEN: IECRED; ISSN: 0888-5885
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The vapor phase oxidn. of propene to acrolein is a highly exothermic reaction. To ensure isothermal reaction conditions, a catalytic wall reactor was used for detailed investigations on the reaction behavior on a multicomponent bismuth-molybdate oxide catalyst. The reaction temp. showed only small influence on the selectivity to acrolein, but a significant optimum at about 360.degree. is obsd. The results further indicate a change in the rate-detg. step: while at low temps. (<360.degree.) catalyst reoxidn. is rate detg., with increasing oxygen content accelerating the formation of acrolein considerably, its influence disappears at higher temps. Not only does water increase the selectivity to acrolein, but also, at low temps., it improves catalyst reoxidn. remarkably. Addnl., the formation of the most important side products (acrylic acid, carbon oxides, acetaldehyde, formaldehyde, and acetic acid) was obsd., depending on the reaction parameters.
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L91 ANSWER 4 OF 11 WPIDS (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 2001-589350 [66] WPIDS
DOC. NO. CPI: C2001-174688
TITLE: Production of (meth)**acrylic acid**, involves reacting specific hydrocarbons, absorbing formed product using solvent, **separating** solvent, impurities, adding aldehyde treating agent to crude acid, recycling waste liquid.
DERWENT CLASS: A41 E17
INVENTOR(S): MATSUMOTO, Y; MITSUMOTO, T; NAKAHARA, S; YOSHIMURA, T
PATENT ASSIGNEE(S): (JAPC) NIPPON SHOKUBAI CO LTD; (MATS-I) MATSUMOTO Y; (MITS-I) MITSUMOTO T; (NAKA-I) NAKAHARA S; (YOSH-I) YOSHIMURA T
COUNTRY COUNT: 2
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
US 2001016668	A1	20010823	(200166)*		8
JP 2001213839	A	20010807	(200166)		7

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 2001016668	A1	US 2001-772458	20010130
JP 2001213839	A	JP 2000-26149	20000203

PRIORITY APPLN. INFO: JP 2000-26149 20000203
AN 2001-589350 [66] WPIDS
AB US2001016668 A UPAB: 20011113
NOVELTY - A gaseous reaction product formed by catalytic gas phase **oxidation** of **propylene**, propane and/or acrolein, and isobutylene, t-butyl alcohol, methyl-t-butyl ether and/or methacrolein, is absorbed using solvent; followed by **separating** solvent and impurities. Crude (meth)**acrylic acid** (MA) formed is **separated** and treated with aldehyde treating agent to obtain

purified MA. Waste liquid generated is recycled.

DETAILED DESCRIPTION - **Propylene**, propane and/or acrolein, or isobutylene, t-butyl alcohol, methyl-t-butyl ether and/or methacrolein are subjected to catalytic gas phase **oxidation** to obtain a gaseous reaction product. The above product is absorbed using a solvent. The solvent, low and high boiling point impurities are **separated** from the (meth)**acrylic acid** solution by **extraction** or **distillation**. Crude (meth)**acrylic acid**-containing aldehydes having boiling point closer to that of (meth)**acrylic acid** is obtained as impurities. An aldehyde treating agent is added to the crude (meth)**acrylic acid** and subjected to vacuum **distillation** to obtain (meth)**acrylic acid** of high purity. The waste liquid generated during **distillation** is returned to solvent absorption and/or **separation** process.

USE - For manufacturing (meth)**acrylic acid** with high purity.

ADVANTAGE - The method enables to manufacture (meth)**acrylic acid** with high purity and effectively suppresses the generation of a polymer. The re-circulation of the waste liquid prevents the clogging of the pipe for discharging the residue.

Dwg.0/0

L91 ANSWER 5 OF 11 WPIDS (C) 2003 THOMSON DERWENT

ACCESSION NUMBER: 2000-319260 [28] WPIDS

DOC. NO. CPI: C2000-096960

TITLE: **Oxidation** of olefinic compound, e.g. of **propylene** to **propylene** oxide, over heterogeneous catalyst uses medium containing carbon monoxide besides oxygen.

DERWENT CLASS: E13

INVENTOR(S): GROSCH, G H; MUELLER, U; RIEBER, N; STEIN, B

PATENT ASSIGNEE(S): (BADI) BASF AG

COUNTRY COUNT: 52

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
DE 19847629	A1	20000420	(200028)*		6
WO 2000021945	A1	20000420	(200028)	GE	
RW: AT BE CH CY DE DK EA ES FI FR GB GR IE IT LU MC NL PT SE					
W: AL AU BG BR BY CA CN CZ GE HU ID IL IN JP KR KZ LT LV MK MX NO NZ PL RO RU SG SI SK TR UA US ZA					
AU 9962027	A	20000501	(200036)		
BR 9914569	A	20010703	(200141)		
EP 1121350	A1	20010808	(200146)	GE	
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
KR 2001080171	A	20010822	(200213)		
US 6348607	B1	20020219	(200221)		
CN 1330645	A	20020109	(200229)		
JP 2002527428	W	20020827	(200271)		24
MX 2001003669	A1	20011101	(200279)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 19847629	A1	DE 1998-19847629	19981015
WO 2000021945	A1	WO 1999-EP7738	19991014

AU 9962027	A	AU 1999-62027	19991014
BR 9914569	A	BR 1999-14569	19991014
		WO 1999-EP7738	19991014
EP 1121350	A1	EP 1999-970389	19991014
		WO 1999-EP7738	19991014
KR 2001080171	A	KR 2001-704742	20010414
US 6348607	B1	WO 1999-EP7738	19991014
		US 2001-806514	20010416
CN 1330645	A	CN 1999-814541	19991014
JP 2002527428	W	WO 1999-EP7738	19991014
		JP 2000-575851	19991014
MX 2001003669	A1	MX 2001-3669	20010410

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9962027	A	Based on	WO 200021945
BR 9914569	A	Based on	WO 200021945
EP 1121350	A1	Based on	WO 200021945
US 6348607	B1	Based on	WO 200021945
JP 2002527428	W	Based on	WO 200021945

PRIORITY APPLN. INFO: DE 1998-19847629 19981015
AN 2000-319260 [28] WPIDS
AB DE 19847629 A UPAB: 20000613

NOVELTY - In the **oxidation** of organic compound(s) (I) containing carbon-carbon (C-C) double bonds by reaction with a medium containing oxygen (O2) in the presence of a heterogeneous catalyst, the medium also contains carbon monoxide (CO).

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for an integrated process for the **oxidation** of (I) in 4 stages.

USE - The process is useful in the production of epoxides from olefins, preferably low-molecular olefins, such as ethylene, butenes and especially **propylene**. It is suitable for the epoxidation of a wide range of olefinic compounds, including 2-20 C olefins; **propylene** di-, tri- and tetramers; styrene and other vinyl-aromatic compounds; diphenylethylene; polybutadiene; polyisoprene; 6-8 and 12 C cycloolefins; cyclooctadiene; cyclododecatriene; dicyclopentadiene; methylene-cyclopropane, -cyclopentane and -**cyclohexane**; vinyl-**cyclohexane** and -cyclohexene; methallyl ketone; allyl chloride and bromide; (meth)acrylic, crotonic and vinylacetic acid; crotyl and methallyl chloride; dichlorobutenes; allyl alcohol, carbonate and **acetate**; alkyl (meth)**acrylates**; diallyl maleate and phthalate; unsaturated triglycerides, e.g. soya oil; unsaturated fatty acids, e.g. oleic, linolic, linolenic and ricinoleic acid and their esters, including mono-, di- and triglycerides; and mixtures of these.

ADVANTAGE - The process gives over 60% selectivity to epoxides without using explosive gas mixtures of oxygen and hydrogen.

Dwg.0/0

L91 ANSWER 6 OF 11 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1998:455727 HCAPLUS
DOCUMENT NUMBER: 129:54696
TITLE: Purification of acrylic acid obtained by catalytic oxidation of propylene by absorption with hydrophobic aromatic hydrocarbon solvents
INVENTOR(S): Fauconet, Michel; Esch, Marc; Laurent, Denis
PATENT ASSIGNEE(S): Elf Atochem S. A., Fr.

SOURCE: Fr. Demande, 31 pp.
CODEN: FRXXBL
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2756280	A1	19980529	FR 1996-14397	19961125
FR 2756280	B1	19981224		
WO 9823573	A1	19980604	WO 1997-FR2092	19971120
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9852273	A1	19980622	AU 1998-52273	19971120
EP 946486	A1	19991006	EP 1997-947102	19971120
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, FI				
CN 1238754	A	19991215	CN 1997-199991	19971120
BR 9713102	A	20000328	BR 1997-13102	19971120
JP 2000507616	T2	20000620	JP 1998-524349	19971120
US 6281386	B1	20010828	US 1999-308756	19990525

PRIORITY APPLN. INFO.: FR 1996-14397 A 19961125
WO 1997-FR2092 W 19971120

OTHER SOURCE(S): MARPAT 129:54696

AB Acrylic acid, obtained by the catalytic oxidn. of propylene, is purified by a counter-current washing of the reaction-mixt. gas with a heavy, hydrophobic, arom. hydrocarbon solvent (e.g., ditolyl ether), and then obtained in purified form by an extn. step. Suitable arom. solvents have: (1) a b.p., at atm. pressure, in the range of 260-380.degree.; (2) a crystn. temp. <35.degree.; and a viscosity <10 mPa-s at 30-80.degree.. A process flow diagram is presented.

L91 ANSWER 7 OF 11 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1997:178840 HCAPLUS
DOCUMENT NUMBER: 126:172034
TITLE: Purification of acrylic acid obtained by the catalytic oxidation of propylene
INVENTOR(S): Fauconet, Michel; Esch, Marc; Samuel, Yves; Laurent, Denis
PATENT ASSIGNEE(S): Elf Atochem S.A., Fr.
SOURCE: Eur. Pat. Appl., 12 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 754671	A1	19970122	EP 1996-401590	19960717
EP 754671	B1	19990331		
R: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, NL, PT, SE				
FR 2736912	A1	19970124	FR 1995-8672	19950718
FR 2736912	B1	19970822		

US 5705688	A	19980106	US 1996-682188	19960717
AT 178308	E	19990415	AT 1996-401590	19960717
ES 2132854	T3	19990816	ES 1996-401590	19960717
CA 2181508	AA	19970119	CA 1996-2181508	19960718
CN 1143069	A	19970219	CN 1996-106194	19960718
CN 1063426	B	20010321		
JP 09118645	A2	19970506	JP 1996-207967	19960718
JP 3053575	B2	20000619		
CZ 288198	B6	20010516	CZ 1996-2141	19960718

PRIORITY APPLN. INFO.: FR 1995-8672 A 19950718

AB The gaseous oxidn. product is subjected to countercurrent extn. with a heavy hydrophobic solvent and to 2 stages of distn. The ext. from the initial stage is fed to near the bottom of the first distn. stage, from which acrylic acid is withdrawn as overhead and the bottoms are fed to a side point in the lower half of the second distn. stage. The bottoms from the second distn. (mostly solvent) are recycled to the extn. stage, a side stream contg. maleic anhydride and other byproducts with b.p. between that of acrylic acid and that of the solvent is withdrawn from a point above the feed, and the overhead is recycled to the first distn. stage. Optionally, another distn. stage may be inserted between the extn. and the first distn. stage, in which light impurities (e.g., HOAc) are stripped.

L91 ANSWER 8 OF 11 WPIDS (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 1997-549028 [50] WPIDS
CROSS REFERENCE: 1995-081052 [11]; 1995-226153 [30]; 1998-041229 [04]; 2002-050509 [07]
DOC. NO. CPI: C1997-175058
TITLE: Epoxidation of aliphatic mono olefin(s) - by contacting with hydrogen peroxide in the presence of a crystalline molecular sieve containing titanium.
DERWENT CLASS: A41 E13 H04 J04
INVENTOR(S): CROCCO, G L; SAXTON, R J; ZAJACEK, J G
PATENT ASSIGNEE(S): (ATLF) ARCO CHEM TECHNOLOGY LP
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
US 5684170	A	19971104	(199750)*		8

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
US 5684170	A	Div ex	US 1993-172405	19931223
		Cont of	US 1996-622799	19960327
			US 1996-650230	19960520

FILING DETAILS:

PATENT NO	KIND		PATENT NO
US 5684170	A	Div ex	US 5374747

PRIORITY APPLN. INFO: US 1993-172405 19931223; US 1996-622799 19960327; US 1996-650230 19960520
AN 1997-549028 [50] WPIDS
CR 1995-081052 [11]; 1995-226153 [30]; 1998-041229 [04]; 2002-050509 [07]
AB US 5684170 A UPAB: 20020130
Epoxidation of 2-10C aliphatic monoolefins comprises contacting the

monoolefin with hydrogen peroxide in a liquid phase in the presence of a crystalline titanium-containing molecular sieve at 25-120 deg. C. The crystalline titanium-containing molecular sieve has a framework structure isomorphous to zeolite beta comprising Si and Ti but less than 1000 ppm framework aluminium, in a ratio of SiO2:yTiO2 (y = 0.01-0.25). The sieve is prepared by: (a) contacting a zeolite beta with a mineral acid at 20-200 deg. C until all of the aluminium from the framework is **extracted**, to form a de-aluminised zeolite beta having a Si:Al molar ratio omega 750; and (b) contacting the de-aluminised zeolite beta with a volatile titanium compound at 100-850 deg. C.

USE - The process is useful for epoxidation of especially **propylene** (claimed) and, e.g. ethylene, butenes, butadiene, pentenes, isoprene, 1-hexene, 3-hexene, 1-heptene, 1-octene, diisobutylene, 1-nonene, 1-tetradecene, pentamyrcene, camphene, 1-undecene, 1-dodecene, 1-tridecene, 1-tetradecene, 1-pentadecene, 1-hexadecene, 1-heptadecene, 1-octadecene, 1-nonadecene, 1-eicosene, trimers and tetramers of **propylene**, styrene, polybutadiene, polyisoprene, cyclopentene, cyclohexene, cycloheptene, cyclooctene, cyclooctadiene, cyclododecene, cyclododecatriene, dicyclopentadiene, methylenecyclopropane, methylene cyctopentane, methylenecyclohexane, vinyl **cyclohexane**, vinyl cyclohexene, methallyl ketone, allyl chloride and bromide, **acrylic acid**, methacrylic acid, crotonic acid, vinyl **acetic acid**, crotyl chloride, methallyl chloride, dichlorobutenes, allyl alcohol, allyl carbonate, allyl **acetate**, alkyl **acrylates** and methacrylates, diallyl maleate, diallyl phthalate, unsaturated triglycerides (e.g. soybean oil) and unsaturated fatty acids, e.g. oleic acid, linolenic acid, linoleic acid, erucic acid palmitoleic acid and ricinoleic acid and glyceride esters. In addition, the titanium-containing molecular sieves are also useful as ion exchangers, shape-selective **separation** media or catalysts for other hydrocarbon conversion processes, e.g. cracking, selectoforming, hydrogenation, dehydrogenation, oligomerisation, alkylation, isomerisation, dehydration, hydroxylation of olefins or aromatics, alkane **oxidation**, reforming, disproportionation, methanation. The molecular sieves are also particularly useful for catalysing reactions previously catalysed by titanium silicalites (titanium silicates).

ADVANTAGE - Epoxide selectivities of, e.g. 75% and hydrogen peroxide conversions of 98% are obtained (in examples).

Dwg.0/1

L91 ANSWER 9 OF 11 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:608383 HCAPLUS

DOCUMENT NUMBER: 123:111416

TITLE: Investigations of catalytic mechanisms for selective propene oxidation in the presence of steam

AUTHOR(S): Saleh-Alhamed, Yahia A.; Hudgins, Robert R.; Silveston, Peter L.

CORPORATE SOURCE: Chemical Engineering Department, King Abdulaziz University, P.O. Box 9027, Jeddah, 214413, Saudi Arabia

SOURCE: Applied Catalysis, A: General (1995), 127(1-2), 177-99
CODEN: ACAGE4; ISSN: 0926-860X

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A study was carried out on propene partial oxidn. in the presence and absence of steam over a mixed transition metal oxide. Its objective was to explore mechanisms and key rate controlling steps for this partial oxidn. in the presence of added water. The reaction was studied in the

concn. ranges (by vol. %) C:3 .ltoreq.20%; 5% < O2 < 20%; 0.5% < H2O < 15% with N2 as a diluent. An Sb/Sn/V oxide catalyst was used. Three techniques were used: (1) transient response of reaction products to a step-change in feed compn., (2) temp.-programmed desorption (TPD) for reactant and product adsorbates, and (3) isotopic transient expts. using 18O2. TPD and isotopic expts. suggest that water addn. disturbs the adsorbate concns. on the surface through competitive adsorption and creates new sites, leading to a slow increase in the rate of partial oxidn. These expts. also establish that oxygen is not strongly chemisorbed but oxygen exchange with the surface is possible. The existence of at least three groups of adsorption and/or reaction sites was postulated, corresponding to weakly bonded propene at 140.degree.C, strongly bonded propene at 210.degree.C and sites on which propene is converted to oxygenates up to 400.degree.C. Only the strongly bonding sites contribute to acid formation, C-C bond scission and total oxidn. With water present, further oxidn. of oxygenates is suppressed and carbon dioxide forms only from C-C bond scission. Water may participate in acid formation.

L91 ANSWER 10 OF 11 WPIDS (C) 2003 THOMSON DERWENT
ACCESSION NUMBER: 1993-220872 [28] WPIDS
DOC. NO. CPI: C1993-098310
TITLE: **Acrylic acid** prodn. on an industrial scale - by **oxidn**. of **propylene** and/or acrolein and **distn**. in azeotropic **sepn**. tower using mixed azeotrope solvent.
DERWENT CLASS: A41 E17
INVENTOR(S): AKAZAWA, Y; BABA, M; SAKAMOTO, K; TANAKA, H; UEOKA, M
PATENT ASSIGNEE(S): (JAPC) NIPPON SHOKUBAI CO LTD; (JAPC) NIPPON CATALYST CO LTD
COUNTRY COUNT: 14
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 551111	A1	19930714	(199328)*	EN	10
R: DE ES FR GB IT					
AU 9331057	A	19930715	(199335)		
CA 2086779	A	19930710	(199339)		
JP 05246941	A	19930924	(199343)		7
US 5315037	A	19940524	(199420)		8
AU 654070	B	19941020	(199443)		
JP 08009567	B2	19960131	(199609)		7
CN 1078458	A	19931117	(199710)		
TW 295580	A	19970111	(199717)		
EP 551111	B1	19970618	(199729)	EN	9
R: DE ES FR GB IT					
DE 69311585	E	19970724	(199735)		
MX 184140	B	19970310	(199820)		
SG 47659	A1	19980417	(199826)#		
CA 2086779	C	19980623	(199836)		
KR 9604624	B1	19960409	(199914)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 551111	A1	EP 1993-100158	19930107
AU 9331057	A	AU 1993-31057	19930106
CA 2086779	A	CA 1993-2086779	19930106

JP 05246941	A	JP 1993-1866	19930108
US 5315037	A	US 1993-222	19930104
AU 654070	B	AU 1993-31057	19930106
JP 08009567	B2	JP 1993-1866	19930108
CN 1078458	A	CN 1993-101177	19930109
TW 295580	A	TW 1992-110509	19921230
EP 551111	B1	EP 1993-100158	19930107
DE 69311585	E	DE 1993-611585	19930107
		EP 1993-100158	19930107
MX 184140	B	MX 1993-65	19930108
SG 47659	A1	SG 1996-3558	19930107
CA 2086779	C	CA 1993-2086779	19930106
KR 9604624	B1	KR 1993-63	19930106

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 654070	B	Previous Publ.	AU 9331057
JP 08009567	B2	Based on	JP 05246941
DE 69311585	E	Based on	EP 551111

PRIORITY APPLN. INFO: JP 1992-2331 19920109; SG 1996-3558 19930107

AN 1993-220872 [28] WPIDS

AB EP 551111 A UPAB: 19931118

Prodn. of **acrylic acid** (I) comprises (a) subjecting **propylene** and/or acrolein to catalytic gas phase **oxidn**. with a molecular oxygen-contg. gas to obtain a mixed. gas; (b) contacting the mixed gas with water in an **acrylic acid** absorption tower to obtain an **acrylic acid** aq. soln.; and (c) introducing the **acrylic acid** aq. soln. into an azeotropic **separation** tower for **distn**. of the **acrylic acid** aq. soln. along with an azeotrope solvent to **separate** (I) from the **acrylic acid** aq. soln.

The azeotrope solvent is a mixed solvent consisting of at least one solvent A of diethyl ketone, methyl propyl ketone, methyl isobutyl ketone, methyl tert-butyl ketone and n-**propyl acetate** and at least one solvent B of toluene, heptane and methylcyclohexane. A mixt. (M) consisting substantially of **acetic acid**, water and the azeotrope solvent is thus **distilled** off from the top of the azeotropic separtion tower and (I) which is substantially free of **acetic acid**, water and the azeotrope solvent is obtd. from the bottom of the tower.

USE/ADVANTAGE - The liq. withdrawn from the bottom can be used, as it is, as a starting material for preparing acrylic esters and when the liq. is subjected to further **distn**. to remove high boiling impurities, there is obtained an **acrylic acid** prod. of high quality. The process provides a way of producing highly pure **acrylic acid** in an industrially beneficial manner.

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ABEQ JP 05246941 A UPAB: 19931207

Prepn. or **acrylic acid** (I) comprises (1) **oxidn** . of **propylene** and/or acrolein with 02, (2) absorbing the **oxidn**. prod. into water, and (3) **distilling** the aq. soln. (II) in the presence of a solvent mixt. (III) to remove (I) as bottom (IV). The solvent mixt. (III) comprises component A (IIIa) selected from diethylketone, methyl propyl ketone, methyl isobutyl ketone (MIBK) methyl tert-butyl ketone, n-**propyl acetate** and

component B (IIIb) selected from toluene, heptane and methylcyclohexane.
Pref. the **oxidn**. prod. is contacted with water in an absorption tower (IIIa)/(IIIb) = 50/50-75-25) is fed to the column from a tank. A mixt. of water, byproduct **acetic acid** and (III) is removed as overhead and the organic layer is **sepd**. from the gaseous layer, and fed to the column as (III). The bottom of the column, **purified** (I), is fed to a **distilling** column to **recover** (I) as overhead, and heavy impurities are removed. Alternatively, the bottom can be used as material for prpen. of a deriv. e.g. methyl **acrylate** etc. without further **purifcn**.
ADVANTAGE - (I) is **sepd**. from (II) efficiently by azeotropic **distn**. using (III).
Dwg.0/1

ABEQ US 5315037 A UPAB: 19940705
Acrylic acid is produced by catalytic gas phase **oxidn**. of **propylene** and/or acrolein with O2-contg gas; contacting resulting mixed gas with water in **acrylic acid** absorption tower; and introducing resulting **acrylic acid** aq. soln. into an azeotrope solvent to **separate** **acrylic acid** from soln..
The azeotrope solvent is a mixed solvent consisting of at least one solvent (A) selected from diethyl ketone, methyl propyl ketone, MIBK, methyl tert. butyl ketone, and n-**propyl acetate**; and at least one solvent (B) selected from toluene, heptane and methyl-**cyclohexane**.
A mixt. consisting of **acetic acid**, water and the azeotrope solvent is **distilled** off from the top of the tower. **Acrylic acid** free from **acetic acid**, water and the solvent is obtd. from the bottom of the tower.
ADVANTAGE - High purity **acrylic acid** is produced in industrially beneficial process.
Dwg.0/1

ABEQ EP 551111 B UPAB: 19970716
A process for producing **acrylic acid** which comprises subjecting **propylene** and/or acrolein to catalytic gas phase **oxidation** with a molecular oxygen-containing gas to obtain a mixed gas, contacting the mixed gas with water in an **acrylic acid** absorption tower to obtain an **acrylic acid** aqueous solution comprising 50 to 80 wt.% of **acrylic acid**, 2 to 5 wt.% of **acetic acid** and the balance being of water, and introducing the **acrylic acid** aqueous solution into an azeotropic **separation** tower for **distillation** of the **acrylic acid** aqueous solution along with an azeotrope solvent to **separate** **acrylic acid** from the **acrylic acid** aqueous solution, wherein said azeotrope solvent is a mixed solvent consisting of at least one solvent A of diethyl ketone, methyl propyl ketone, methyl isobutyl ketone, methyl-tert.-butyl ketone and n-**propyl acetate** and at least one solvent B of toluene, heptane and methylcyclohexane in a mixing ratio by weight between the solvent A and the solvent B in the azeotrope solvent in the range of 50:50 to 75:25 whereby a mixture consisting substantially of **acetic acid**, water and the azeotrope solvent is **distilled** off from the top of the azeotropic **separation** tower and **acrylic acid** which is substantially free of **acetic acid**, water and the azeotrope solvent is obtained from the bottom of the tower.
Dwg.0/1

L91 ANSWER 11 OF 11 WPIDS (C) 2003 THOMSON DERWENT

ACCESSION NUMBER: 1968-08890Q [00] WPIDS
TITLE: **Acrylic acid** is **purified** by azeotropic **distillation** of **acetic acid** from mixts. of acrylic and **acetic acids** at pressures below 350 mm Hg. abs. in presence of a p.
DERWENT CLASS: A00
PATENT ASSIGNEE(S): (ASAH) ASAHI KASEI KOGYO KK
COUNTRY COUNT: 4
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
GB 1120284	A		(196800)*		
US 3433831	A		(196801)		
JP 46022456	B		(197125)		
DE 1568022	B		(197323)		

PRIORITY APPLN. INFO: JP 1965-38905 19650630; JP 1965-38906 19650630
AN 1968-08890Q [00] WPIDS
AB GB 1120284 A UPAB: 19930831
Acrylic acid is **purified** by azeotropic **distillation** of **acetic acid** from mixts. of acrylic and **acetic acids** at pressures below 350 mm Hg. abs. in presence of a polymerization inhibitor, the entrainer being a C7 aliphatic or alicyclic hydrocarbon, toluene, or a mixt. of these, with water and/or an ester R1COOR2 (where R1 is C1-3 hydrocarbyl radical and R2 is a C1-4 hydrocarbyl radical) having a b.p. not above 130 deg.C. and/or a C3-4 nitrile, the mol ratio of water, ester or nitrile to hydrocarbon being from 0.05:1 to 1.5:1. Ethyl **acetate**, methyl **acrylate**, **propyl acetate**, ethyl **acrylate**, acetonitrile and acrylonitrile are suitable entrainer components. The **acrylic acid** may be obtd. by vapour phase **oxidation** of **propylene** or acrolein giving a 10-30% aqs. **acrylic acid** soln. contng. a mol ratio of 1/4 to 1/500 of **acetic acid**.
The crude soln. may be **extracted** with the water-insoluble entrainer components and the **extract distilled**.